

US005133731A

United States Patent [19]

Butler et al.

Patent Number: [11]

5,133,731

Date of Patent:

Jul. 28, 1992

[54] EMBOLUS SUPPLY SYSTEM AND METHOD

[75] Inventors: James R. Butler, Ingleside, Ill.;

William C. McCoy, Zionsville, Ind.;

Arnold Miller, Chestnut Hill, Mass.

[73] Assignee: Catheter Research, Inc., Indianapolis,

[21] Appl. No.: 612,107

Filed: Nov. 9, 1990 [22]

Int. Cl.⁵ A61B 17/00

[52] **U.S. Cl.** **606/191;** 606/198; 606/195

Field of Search 606/200, 195, 198, 151, 606/108, 191; 604/104; 128/831, 843

[56] References Cited

U.S. PATENT DOCUMENTS

	40 /4000	T
1,694,246	12/1928	Boyne .
2,269,963	1/1942	Wappler .
3,833,003	9/1974	Taricco .
4,282,875	8/1981	Serbinenko et al
4,445,896	5/1984	Gianturco .
4,471,779	9/1984	Antoshkiw et al
4,494,531	1/1985	Gianturco .
4,512,342	4/1985	Zaneveld et al
4,543,090	9/1985	McCoy .
4,545,367	10/1985	Tucci .
4,601,705	7/1986	McCoy .
4,655,746	4/1987	Daniels et al
4,662,885	5/1987	DiPisa, Jr
4,686,962	8/1987	Haber .
4,688,553	8/1987	Metals .
4,708,718	11/1987	Daniels .
4,732,152	3/1988	Wallsten et al
4,739,768	4/1988	Engelson .
4,744,364	5/1988	Kensey.
4,758,222	7/1988	McCov .
4,800,882	1/1989	Gianturco .
4,813,934	3/1989	Engelson et al
4,832,047	5/1989	Sepetka et al
4,884,579	12/1989	Engelson .
4,944,727	7/1990	McCov .
4,994,069	2/1991	Ritchart et al
4,224,002	2, 1771	141011411 01 411 1

FOREIGN PATENT DOCUMENTS

223065 6/1985 Fed. Rep. of Germany .

OTHER PUBLICATIONS

Perry, Stanton B. et al, "Coil Embolization to Occlude Aortopulmonary Collateral Vessels and Shunts in Patients with Congenital Heart Disease", J. Am. Coll. Cardiol., vol. 13, Jan. 1989, pp. 100-108.

Hawkins, Jeffrey et al, "Retrievable Gianturco-Coil Introducer", Radiology, vol. 158, Jan. 1986, pp. 262-264.

Fuhrman, Bradley P. et al, "Coil Embolization of Congenital Thoracic Vascular Anomalies in Infants and Children", Therapy and Prevention-Vascular Anomalies, vol. 70, No. 2, Aug. 1984, pp. 285-289. Berkman, William A. et al, "Varicoceles: A Coaxial

Coil Occlusion System", Radiology, vol. 161, No. 1, Apr. 1984, pp. 73-77.

Ralston, Matthew D. et al, "Evaluation of Embolization Distal to Arterial Occlusion by Transcatheter Electrocoagulation (TCEC) and Gianturco Coils", Investigative Radiology, vol. 18, Mar.-Apr. 1983, pp. 171-176. Chuang, Vincent P. et al, "Complications of Coil Embolization: Prevention and Management", AJR 137, Oct. 1981, pp. 809-813.

(List continued on next page.)

Primary Examiner-Michael H. Thaler Attorney, Agent, or Firm-Barnes & Thornburg

[57] **ABSTRACT**

An apparatus and method is provided for dispensing coil emboli one at a time in a controlled and reliable manner during surgery to embolize several blood vessels or the like in a body. The apparatus includes a magazine that is movable within a dispenser housing to position each of the embolus cartridges contained in the magazine one at a time at a dispensing station on command. A stream of pressurized fluid is injected or a guide wire is inserted into the embolus cartridge held in the dispensing station to dislodge an embolus contained therein and discharge it into an embolus-delivery catheter coupled to the dispenser housing. Afterwards, the magazine is moved within the dispenser housing to remove the just-emptied embolus cartridge from the dispensing station and load a fresh embolus cartridge into the dispensing station.

48 Claims, 6 Drawing Sheets

